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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/640,155	08/16/2000	Akio Sakura	8481-033	5433

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EXAMINER
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DAY, MICHAEL HENRY

ART UNIT	PAPER NUMBER
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2879

DATE MAILED: 03/18/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/640,155

Applicant(s)

A. Sakura

Examiner

Michael Day

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\* -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE three MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-9 and 11 is/are allowed.
- 6) ☒ Claim(s) 10 and 12-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some\* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892) 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 19) ☐ Notice of Informal Patent Application (PTO-152)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s). 4 20) ☐ Other:

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## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 10, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art as described on pages 1-3 in the background section of the instant specification.

Referring to claim 10, the admitted prior art includes a method for making a spark plug including a center electrode, an insulator, a metal shell, and a ground electrode (see page 3, lines 3-7), the method including the steps of making a metal shell and joining the ground electrode (see page 3, lines 3-7), forming a zinc-based plating layer excluding the free-end portion of the ground electrode, and subjecting the zinc-based layer to chromate treatment by immersing the entire metal shell which has undergone the chromate treatment. The prior art does not include the step of removing the zinc-based plating layer from the free-end portion of the ground electrode, however, the instant claim does not include the subject additional step. Consequently, it is the position of the examiner that it would have been obvious that the prior art method is a full

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functional equivalent to the instant method as evidenced by the prior art meeting all of the claimed process limitations.

Referring to claim 12, the admitted prior art includes a method for making a spark plug wherein the ground electrode is an Fe-based alloy (see page 1, lines 17, 18).

3. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over the admitted prior art as described on pages 1-3 in the background section of the instant specification in view of Takamura et al.

Referring to claims 13 and 15, the admitted prior art discloses a spark plug including a center electrode, an insulator, a metal shell, and a ground electrode (see page 1, lines 8-14) formed an Fe-based alloy (see page 1, lines 17, 18) and a Pt-based metal chip. The admitted prior art does not include a diffusion layer having a thickness greater than 10 microns. Takamura et al. disclose a ground electrode including a Pt-base chip and including a diffusion layer having a thickness greater than 10 microns so as to avoid rupture (see abstract). It would have been obvious to include a diffusion layer having a thickness greater than 10 microns, as disclosed by Takamura et al., in the spark plug, as disclosed in the prior art, so as to avoid rupture.

Claim 14 is broader than claim 13. Consequently, it is rejected for the same reason as claim 13.

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***Allowable Subject Matter***

4. Claims 1-9, and 11 are allowed over the prior art of record.
5. The following is an examiner's statement of reasons for allowance:

The prior art of record neither shows nor suggests a method for manufacturing a spark plug including the steps of forming a metallic shell assembly having a ground electrode, forming a zinc-based plating layer on the entire surface of the metallic shell assembly, removing the zinc-based plating layer from the free-end portion of the ground electrode, and welding a chip of a high melting point metal to the free-end portion of the ground electrode. The subject method ensures a clean weld between the chip and the ground electrode in spark plugs having a zinc-based coating.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Day whose telephone number is 703/305-4941. The examiner can normally be reached on Monday-Friday, from 8:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nimeshkumar Patel, can be reached by phoning 703/305-4794. The Fax phone number is 703/308-7382.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is 703/308-0956.

March 11, 2003

A handwritten signature in black ink, appearing to read 'M. Day', with a stylized flourish extending to the right.

**MICHAEL DAY**  
**PRIMARY EXAMINER**  
**GROUP 2870**